

eliminated from the iron in large amounts, whilst the endo-thermic carbon reaction had only resulted to a small extent. Further it showed that the slag with its silica content in amounts of 31 per cent, to 36 per cent, lay between the monosilicate (29.4 per cent. SiO_2) and the bisilicate (45.4 per cent SiO_2).

Example 4 is investigated in more detail in the article mentioned, from which it showed that of the ore used only about 3 per cent, remained inactive, whilst of about 60 per cent, of the total quantum of ore, the Fe_2O_3 was reduced to FeO , and about 37 per cent, was reduced to Fe.

Incidentally it is to be remarked that it was possible by means of sufficiently large additions of ore, to remove the silicon down to under 0.1 per cent., and the manganese down to 0.5 per cent., as to which the following example is cited:—

	Si per cent.	Mn per cent.
Pig iron from blast furnace	0.75	0.45
.... Pig iron after action of iron ore	0.09	0.41

The elimination of phosphorus was on the contrary not considerable.

(cL) ACTION OF IRON PEROXIDE ON THE REDUCING AGENTS IN IRON, AIDED BY FURNACE HEAT.

Long previously to the energy changes due to the mutual action of iron oxide on the reducing agents in molten iron being known, the different behaviour of Si, Mn, and P on the one hand, and C on the other, in regard to iron ore had been understood. In the year 1877, Alfred Krupp took out a patent in Germany and England for a process for dephosphorisation of iron, which he also protected by patent in the United States of America in 1880.

As apparatus in which the process is conducted, an open-hearth furnace of any desired system should serve which fulfils the condition of permitting the attainment of the melting point of the pig iron. The hearth of this furnace is (after